

29 August 1969

MEMORANDUM FOR: Chief, Operations Division/OCS

SUBJECT: Results of 360/85, 360/65 Tests

1. The results of recent tests completed by the Technical Staff on an IBM 360/65 (.5M and 1M) and 360/85 (1M and 2M) are summarized below. Attachments reflect summaries of:

- a. OCS Flush Statistics Compared to Benchmark Statistics
- b. Job Names and Characteristics
- c. Job run statistics by machine (flush information)
- d. Job elapsed times and CPU times by machine
- e. Job CPU time improvements between the 85 and the 65
- f. Benchmark analysis by machine (graph)
- g. Configurations

2. Comparative throughput ratios are as follows:

65(1M) vs 65(.5M)	1.2-1 (1.3-1)
85(1M) vs 65(.5M)	5.8-1
85(1M) vs 65(1M)	4.8-1 (4.3-1)
85(2M) vs 65(.5M)	7.3-1
85(2M) vs 65(1M)	6.1-1 (5.0-1)
85(2M) vs 85(1M)	1.3-1

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It should be noted that the benchmark run on the 65(1M) suffered from I/O problems and is not accurate. Reconstruction of the run allows us to arrive at 'best' and 'worst' cases, differing by 15 minutes (2:00 to 2:15). The figures in parenthesis apply to the 'best' 65(1M) run. IBM was not able to furnish additional time for a second run.

3. When evaluating these results it must be remembered that the benchmark job stream was structured randomly as it might enter the Computer Center. No attempt was made, other than separating five Fortran and PL/I CPU bound jobs into a separate class/priority, to optimize the job stream. Further manual optimization would reduce the elapsed time on any given machine. The relatively weak showing of the 65(1M) over the 65(.5M) may be explained by the very high CPU utilization figure. Normally, the OCS CPU utilization is not as high and the 65(1M) could be expected to make a better showing.

4. Earlier benchmarks indicate the IBM 360/65 and CDC 6400 to be essentially equal in power. The CDC 6600 was claimed to be three to four times more powerful than the 6400, whereas the 85 is six to seven times more powerful than the 65. Without a PLI capability, it is not possible for CDC to run our benchmark.

5. From a systems standpoint, the 6600 would impose an additional burden on Tech Staff (in addition to MVT, possibly PCP, RCATOS&POS, 7090, 501, 301 emulations, and the time-sharing system). From a computer facility standpoint, it is my belief that a system of computers (vice stand-alones as we now have) will best serve OCS. With the time-sharing and RJE facilities now available and with a system like ASP available, it seems to me that we should attempt to implement ASP and RJE to support not only 65 users, but to offer batch support (RJE) to the 67 users. A mix of IBM/CDC machines would complicate this scheme probably to the point of impossibility.

Chief  
Technical Staff

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